

IMPORTANT SERVICE SAFETY INFORMATION

Operation of receiver outside of cabinet or with back removed involves a shock hazard. Work on these models should only be performed by those who are thoroughly familiar with precautions necessary when working on high voltage equipment.

Exercise care when servicing this chassis with power applied. Many B plus and high voltage RF terminals are exposed which, if carelessly contacted, can cause serious shock or result in damage to the chassis. Maintain interconnecting ground lead connections between chassis, escutcheon, picture tube dag and tuner cluster when operating chassis.

These receivers have a "polarized" AC line cord. The AC plug is designed to fit into standard AC outlets in one direction only. The wide blade connects to the "ground side" and the narrow blade connects to the "hot side" of the AC line. This assures that the TV receiver is properly grounded to the house wiring. If an extension cord must be used, make sure it is of the "polarized" type.

Since the chassis of this receiver is connected to one side of the AC supply during operation, service should not be attempted by anyone not familiar with the precautions necessary when working on these types of equipment.

When it is necessary to make measurements or tests with AC power applied to the receiver chassis, an Isolation Transformer must be used as a safety precaution and to prevent possible damage to transistors. The Isolation Transformer should be connected between the TV line cord plug and the AC power outlet.

Certain HV failures can increase X-ray radiation. Receivers should not be operated with HV levels exceeding the specified rating for their chassis type. The maximum operating HV specified for the chassis used in these receivers is 29kV $\pm$ 1.0kV at zero beam current with a line voltage of 120V AC. Higher voltage may also increase possibility of failure in HV supply.

It is important to maintain specified values of all components in the horizontal and high voltage circuits and anywhere else in the receiver that could cause a rise in high voltage, or operating supply voltages. No changes should be made to the original design of the receiver.

Components shown in the shaded areas on the schematic diagram and/or identified by Δ in the replacement parts list should be replaced only with exact Factory recommended replacement parts. The use of unauthorized substitute parts may create a shock, fire, X-radiation, or other hazard.

To determine the presence of high voltage, use an accurate high impedance HV meter connected between the second anode lead and the CRT dag grounding device. When servicing the High Voltage System remove static charge from it by connecting 10k ohm resistor in series with an insulated wire (such as a test probe) between picture tube dag and 2nd anode lead (AC line cord

disconnected from AC supply).

The picture tube used in this receiver employs integral implosion protection. Replace with tube of the same type number for continued safety. Do not lift picture tube by the neck. Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage completely. Keep others without shatterproof goggles away.

When removing springs or spring mounted parts from the tuner, tuner cluster or chassis, shatterproof goggles must be worn. Keep others without shatterproof goggles away.

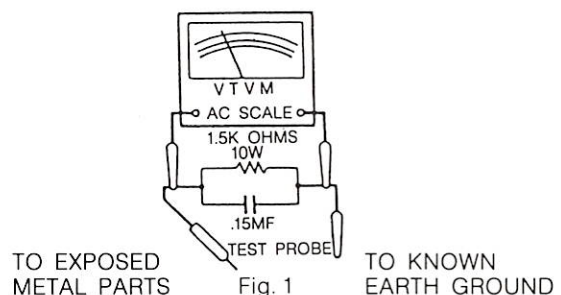
Before returning the receiver to the user, perform the following safety checks:

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Replace all protective devices such as non-metallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacitor networks, mechanical insulators, etc.
3. To be sure that no shock hazard exists, a check for the presence of leakage current should be made at each exposed metal part having a return path to the chassis (antenna, cabinet metal, screw heads, knobs and/or shafts, escutcheon, etc.) in the following manner.

Plug the AC line cord directly into a 120V AC receptacle. (Do not use an Isolation Transformer during these checks.) All checks must be repeated with the AC line cord plug connection reversed. (If necessary, a nonpolarized adapter plug must be used only for the purpose of completing these checks.)

If available, measure current using an accurate leakage current tester. Any reading of 0.35mA or more is excessive and indicates a potential shock hazard which must be corrected before returning the receiver to the owner.

If a reliable leakage current tester is not available, this alternate method of measurement should be used. Using two clip leads, connect a 1500 ohm, 10 watt resistor paralleled by a 0.15MF capacitor in series with a known earth ground, such as a water pipe or conduit and the metal part to be checked. Use a VTVM or VOM with 1000 ohms per volt, or higher, sensitivity to measure this AC voltage drop across the resistor. Any reading of 0.35 volt RMS or more is excessive and indicates a potential shock hazard which must be corrected before returning the receiver to the owner.



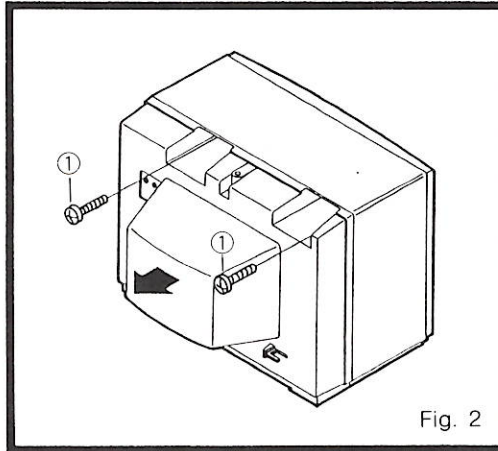
DISASSEMBLY INSTRUCTIONS

SEMICONDUCTOR BASE CONNECTIONS

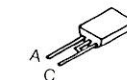
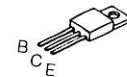
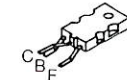
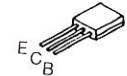
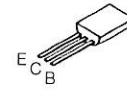
1. REMOVAL OF CABINET BACK (Fig.2)

- ① 4x45 Black Screw

NOTE: REMOVE ALL CORDS AND CONNECTORS BECAUSE THEY PREVENT REMOVAL OF THE COVER.



2SA733
2SA952LT
2SA1320
2SC945A
2SC1815
2SC2271D
2SC3000



2SA1345

2SD1426

2SC2344

L5631-AA

L78M09

μPC1378H

T-2508

TA8677N

TA7778P

LA7940

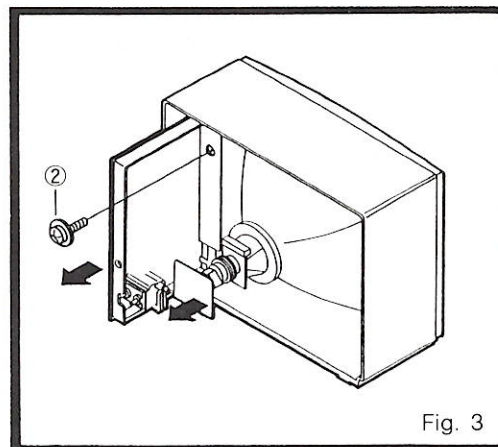
2. REMOVAL OF MAIN PCB (Fig.3)

- ② 3x10 Screw

A) Removal of PCB-CRT.

B) Removal of the anode cap.

CAUTION: BEFORE REMOVING THE ANODE CAP, DISCHARGE ELECTRICITY BECAUSE IT HAS HIGH VOLTAGE.



3. REMOVAL OF CRT (Fig.4)

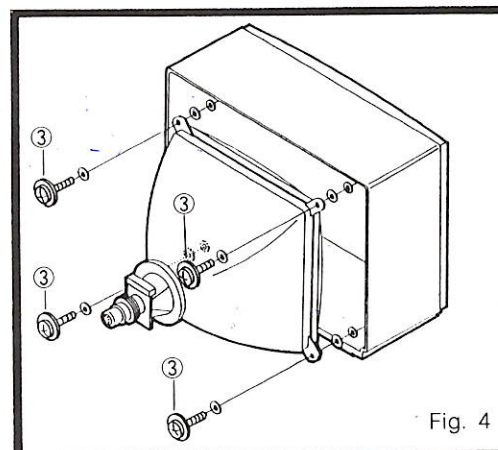
CAUTION: DO NOT MOVE THE POLARIZED COIL MAGNET ASSEMBLY ON THE CRT NECK. BE CAREFUL REMOVING CRT TO AVOID BREAKING THESE ASSEMBLIES.

- ③ 5x40 Screw

A) Put the front cover downward on a soft surface.

B) Remove the four screws.

C) Lift the CRT upward carefully and put it on a soft surface.



ALIGNMENT INSTRUCTIONS

CAUTION: Use an isolation transformer when performing any service on this chassis.

SHUTDOWN CIRCUIT

When the high voltage rises, a simultaneous voltage increase will develop at terminal 10 of the Horizontal Output Transformer (FB401), and be applied to pin 1 of IC201. If excessive high voltage is produced, the increased voltage developed exceeds the rating of zener diode (D406) causing the Horizontal Oscillator to stop functioning and the high voltage system to shut down.

DC 124V ADJUSTMENT

1. Connect a NTSC Color Bar Generator to the antenna terminals and set the output of the Generator to Monochrome pattern.
2. Set the Brightness (VR602-1) and Contrast (VR602-2) controls to minimum position.
3. Connect the digital voltmeter to TP8 and ground.
4. Adjust the digital voltmeter to DC 127V with VR501.

VERTICAL SIZE ADJUSTMENT

Adjust the control VR401 so that the picture fills the screen from top to bottom and is proportionate to the width.

VERTICAL CENTERING ADJUSTMENT

1. Connect a NTSC Color Bar Generator to the antenna terminals and set the output of the Generator to Monochrome pattern.
2. Adjust VR402 until the Monochrome pattern is centered on the CRT in the area between -1mm and +3mm.

RF AGC ADJUSTMENT

The RF AGC Control is adjusted at the factory and rarely requires re-adjustment unless the received picture exhibits excessive snow or the receiver lacks sensitivity. Field adjustment can be made by tuning in a weak snowy station and adjusting RF AGC for the least amount of snow. For a more accurate adjustment use the following procedure.

1. Inject the test pattern signal (3.2mV, 10dBm).
2. Adjust AGC pin of TV tuner (TP5) to 6.7V with VR201.

AFT ADJUSTMENT

1. Connect the output of the oscillator to the tuner pack TP.
2. Adjust L205 to keep constant DC voltage at TP6 with AFT ON and AFT OFF.

FOCUS ADJUSTMENT

Adjust the focus control on the flyback transformer for a defined picture.

SUB BRIGHT ADJUSTMENT

1. Connect a NTSC Color Bar Generator to the antenna terminals and set the output of the Generator to Monochrome pattern.
2. Set the Auto Color SW (SW601) to OFF position.
3. Set the Contrast (VR602-2) and Brightness (VR602-1) controls to minimum position.
4. Adjust VR601 to obtain a dim pattern.

CUT OFF ADJUSTMENT

1. Connect a NTSC Color Bar Generator to the antenna terminals and set the output of the Generator to Color Bar pattern.
2. Set the Brightness (VR602-1) and Contrast (VR602-2) controls to minimum position.
3. Connect the oscilloscope to collector of Q805.
4. Adjust voltage to DC 120V with Screen control of Flyback Trans. (Refer to Fig. 5)

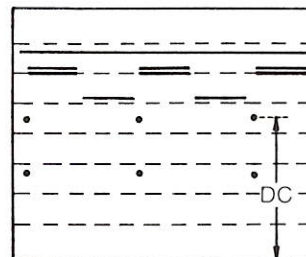


Fig. 5

AUTO COLOR ADJUSTMENT

1. Connect a NTSC Color Bar Generator to the antenna terminals and set the output of the Generator to Monochrome pattern.
2. Set the Brightness (VR602-1) control to maximum position and adjust Contrast level to 20% with the Contrast (VR602-2) control.
3. Set the output of the Generator to Color Bar pattern.
4. Connect the oscilloscope to TP15 on collector of Red output Transistor.
5. Set the Auto Color SW (SW601) to ON position.
6. Adjust the waveform as shown in the diagram with VR604. (Refer to Fig. 6)

AUTO TINT ADJUSTMENT

1. Connect a NTSC Color Bar Generator to the antenna terminals and set the output of the Generator to Monochrome pattern.
2. Set the Brightness (VR602-1) control to maximum position and adjust Contrast level to 20% with the Contrast (VR602-2) control.
3. Set the output of the Generator to Color Bar pattern.
4. Connect the oscilloscope to TP16 on base of Blue output Transistor.
5. Set the Auto Color SW (SW601) to ON position.
6. Adjust the waveform as shown in the diagram with VR603. (Refer to Fig. 7)

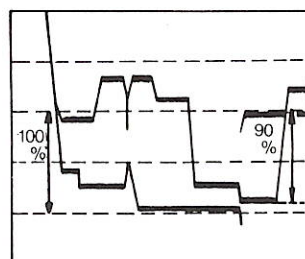


Fig. 6

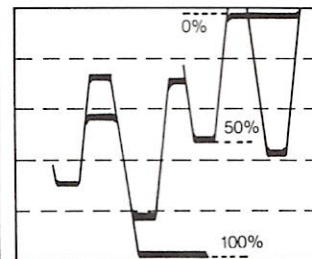


Fig. 7

ALIGNMENT INSTRUCTIONS

STATIC CONVERGENCE ROUGH ADJUSTMENT

The receiver must have been operating 10 minutes prior to this procedure and the face plate of the CRT must be at room temperature.

1. Tighten the magnet screw. Refer to the adjusted CRT for the position. (Refer to Fig. 8)
2. Connect a NTSC Color Bar Generator to the antenna terminals and set the output of the Generator to obtain a Red raster.
3. Adjust center of screen to red, with blue and green on the sides, using the purity magnet.
4. Slide the deflection yoke until it touches the funnel side of the CRT.
5. Connect a NTSC Color Bar Generator to the antenna terminals and set the output of the Generator to Crosshatch pattern.
6. Put red and blue colors of the 3 color Crosshatch pattern on the center of the screen together with a pair of 4 pole magnets.
7. Put red/blue (magenta) and green together with a pair of 6 pole magnets.
8. Adjust the Crosshatch pattern to change to white color by repeating steps 5 and 6.

COLOR PURITY ADJUSTMENT

1. Connect a NTSC Color Bar Generator to the antenna terminals and set the output of the Generator to obtain a Red raster.
2. Loosen the deflection yoke clamp screw and pull the deflection yoke toward the rear of the CRT.
3. Begin adjustment with the tabs on the round purity magnet rings set together. Slowly separate the two tabs by rotating them to adjust for a uniform red stripe at the center of the CRT screen.
4. Carefully slide the deflection yoke forward to achieve a uniform Red screen.

NOTE: Center purity is obtained by adjusting the tabs on the round purity magnets rings. Outer edge purity is obtained by sliding the deflection yoke forward.

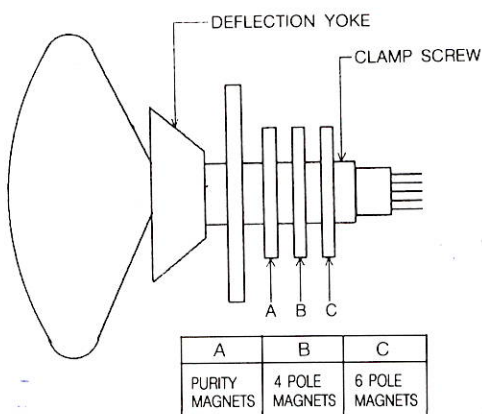


Fig. 8 Picture Tube Neck Component Location

STATIC CONVERGENCE ADJUSTMENT

1. Switch the Receiver ON and allow it to warm up for 15 minutes.
2. Connect the output of a Crosshatch Generator to the receiver and, concentrating on the center of the CRT screen, proceed as follows:

- a. Locate a pair of 4 pole magnets rings. Rotate individual rings (change spacing between tabs) to converge the vertical red and blue lines. Rotate a pair of rings (maintaining spacing between tabs) to converge the horizontal red and blue lines.
- b. After completing red and blue center convergence, locate a pair of 6 pole magnets rings. Rotate individual rings (change spacing between tabs) to converge the vertical red and blue (magenta) and green lines. Rotate a pair of rings (maintaining spacing between tabs) to converge the horizontal red and blue (magenta) and green lines.

DYNAMIC CONVERGENCE ADJUSTMENT

Dynamic convergence (convergence of the three color fields at the edges of the CRT screen) is accomplished by proper insertion and positioning of three rubber wedges between the edge of the deflection yoke and the funnel of the CRT. This is accomplished in the following manner.

1. Switch the Receiver ON and allow it to warm up for 15 minutes.
2. Apply Crosshatch pattern from Dot/Bar Generator to receiver. Observe spacing between lines around edges of CRT screen.
3. Tilt the deflection yoke up or down, and insert tilt adjustment wedges (1) and (2) between the deflection yoke and the CRT until the improper convergence illustrated in Fig. 9 (A) has been corrected.
4. Tilt the deflection yoke right and left, and insert tilt adjustment wedge (3) between the deflection yoke and the CRT until the improper convergence illustrated in Fig. 9 (B) has been corrected.
5. Alternately change spacing between, and depth of insertion of the three wedges until proper dynamic convergence is obtained.
6. Use a strong adhesive tape to firmly secure each of the three wedges to the funnel of the CRT.
7. Check purity and adjust, if necessary.

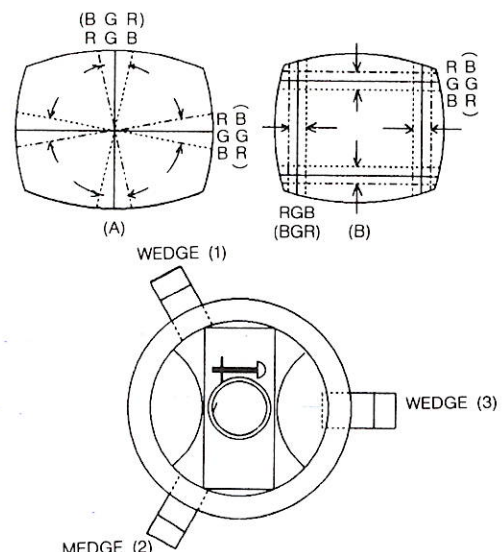


Fig. 9 Dynamic Convergence Adjustment

ALIGNMENT INSTRUCTIONS

VIDEO IF ALIGNMENT

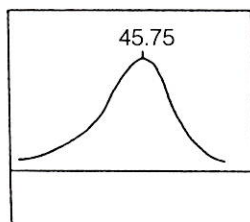
(Refer to Fig. 10)

TEST EQUIPMENT CONNECTION

OSCILLOSCOPE..... Set AC-DC switch to AC position.

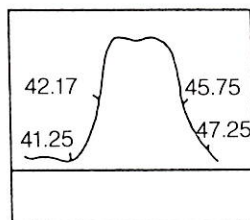
SWEEP-MARKER GENERATOR..... Connect H. SCOPE and V. SCOPE output cable from SWEEP-MARKER GENERATOR to H. and V. input connectors on the OSCILLOSCOPE, connect hot lead of SWEEP-MARKER OUTPUT cable (PR-16A) to TP1; connect ground lead to chassis ground. Connect pick up lead SWEEP-MARKER INPUT cable (PR-15) to TP12; ground lead to chassis ground.

1. Connect 10K ohm variable resistor between TP19, B+(12V) to ground. Install AGC VR to prevent saturation in waveform, then adjust AGC VR for proper size of waveform. On the other hand, in case IF AGC voltage is supplied externally, adjust for proper size of waveform on condition that IF AGC voltage is within 10V and is gradually decreased.
2. Adjust **L204** to obtain maximum amplitude of response curve at 45.75MHz. (Refer to Response Curve "A")



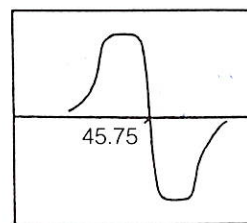
Response Curve "A"

3. Connect a 100 ohm resistor between TP3 and TP4. Re-connect SWEEP-MARKER GENERATOR OUTPUT cable (PR-16A) from TP1 to TV tuner TP.
4. Alternately adjust **IFT** on TV tuner to obtain maximum amplitude of response curve. (Refer to Response Curve "B")



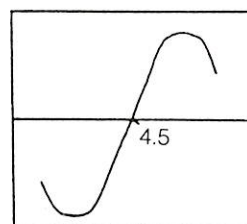
Response Curve "B"

5. Set the AFT SW (SW106) to OFF position.
6. Adjust TP6 to 6.5V with **VR202**.
7. Disconnect the 10K ohm variable resistor and 100 ohm resistor from the circuit.
8. Re-connect SWEEP-MARKER GENERATOR INPUT cable (PR-15) from TP12 to TP6. Disconnect C006 (solder bridge).
9. Adjust **L205** to place 45.75MHz marker at reference line on response curve. (Refer to Response Curve "C")



Response Curve "C"

10. Re-connect C006 (solder bridge).
11. Re-connect SWEEP-MARKER GENERATOR OUTPUT cable (PR-16A) from TV tuner TP to TP2.
12. Re-connect SWEEP-MARKER GENERATOR INPUT cable (PR-15) from TP6 to TP13.
13. Adjust **L303** to place 4.5MHz marker at reference line on response curve. (Refer to Response Curve "D")



Response Curve "D"

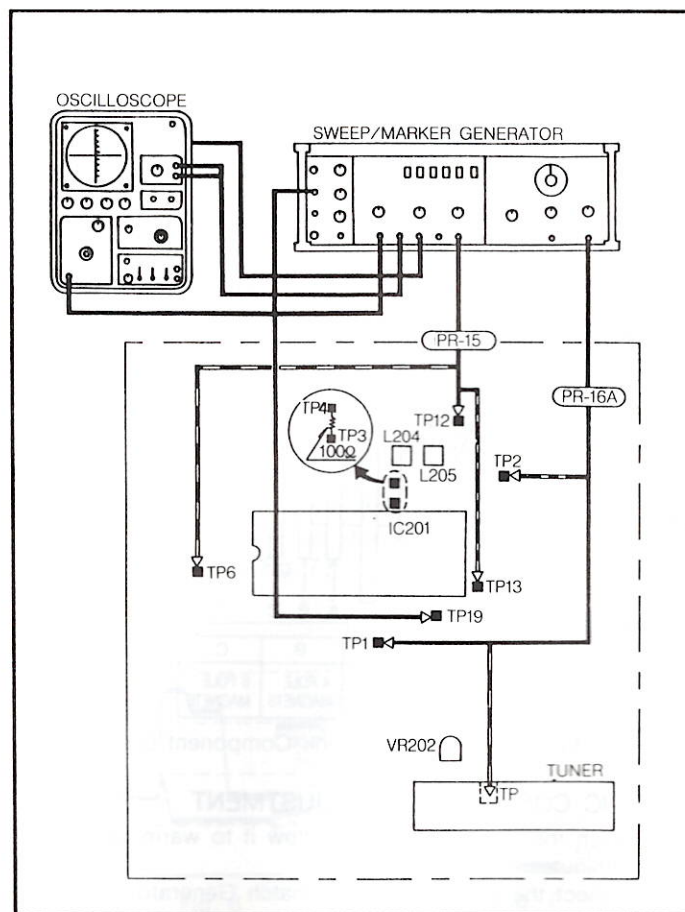
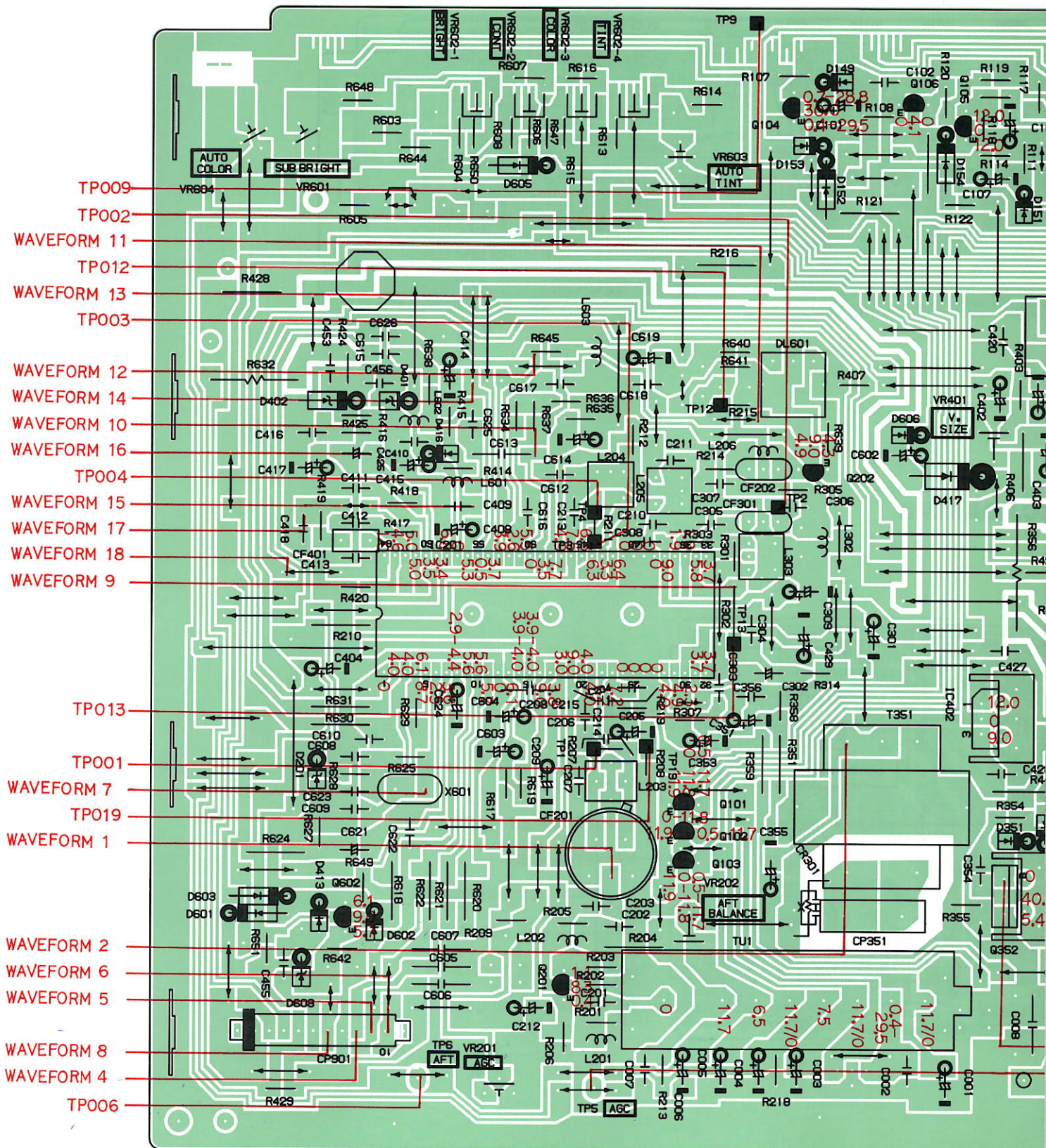
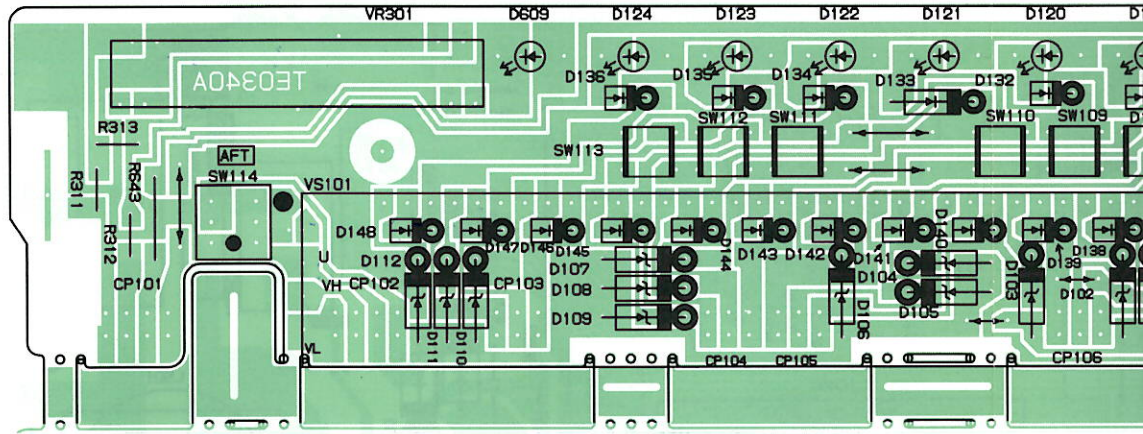


Fig. 10

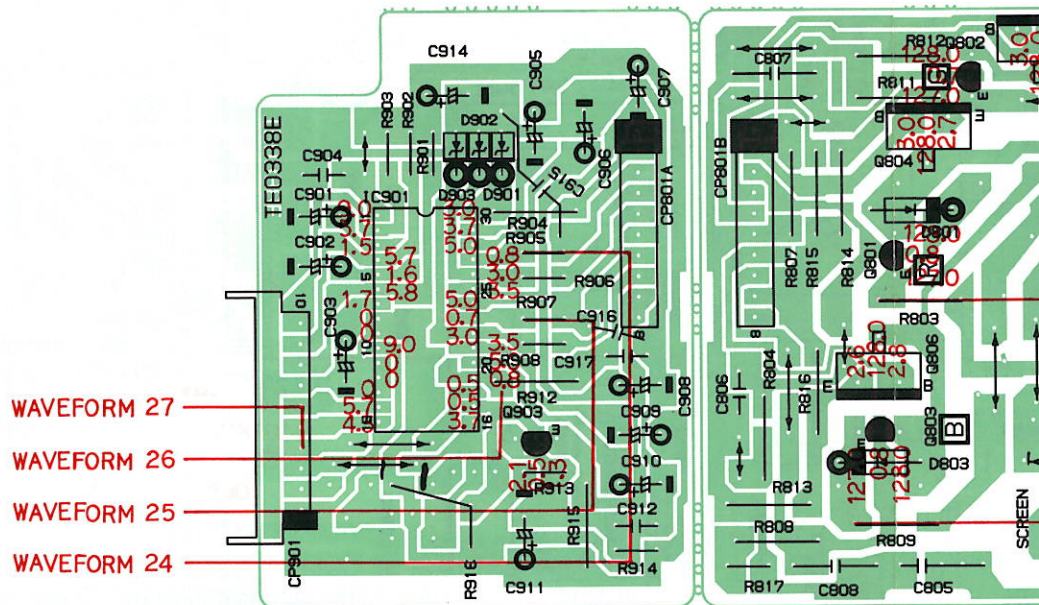


- WAVEFORM 21
- WAVEFORM 3
- TP005

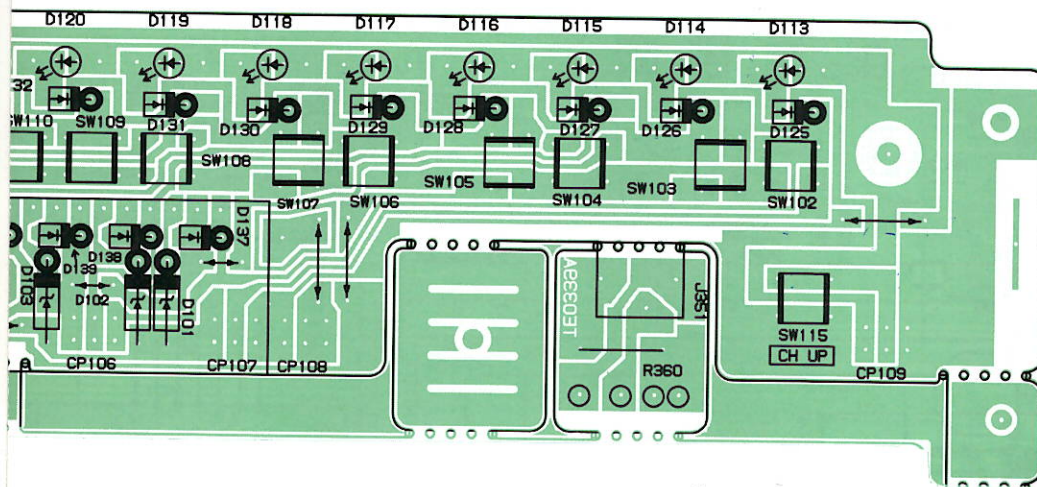
POTENTIOMETER/ EARPHONE



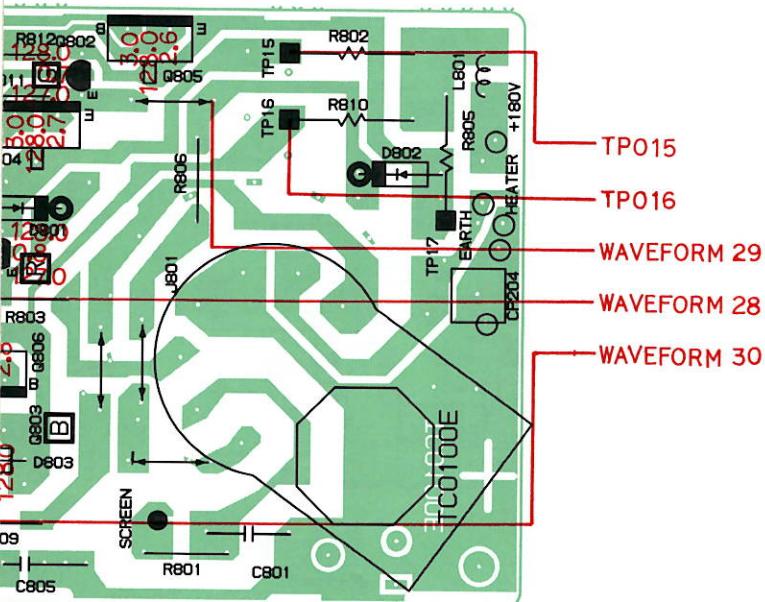
CRT/AKB P.C.BOARD



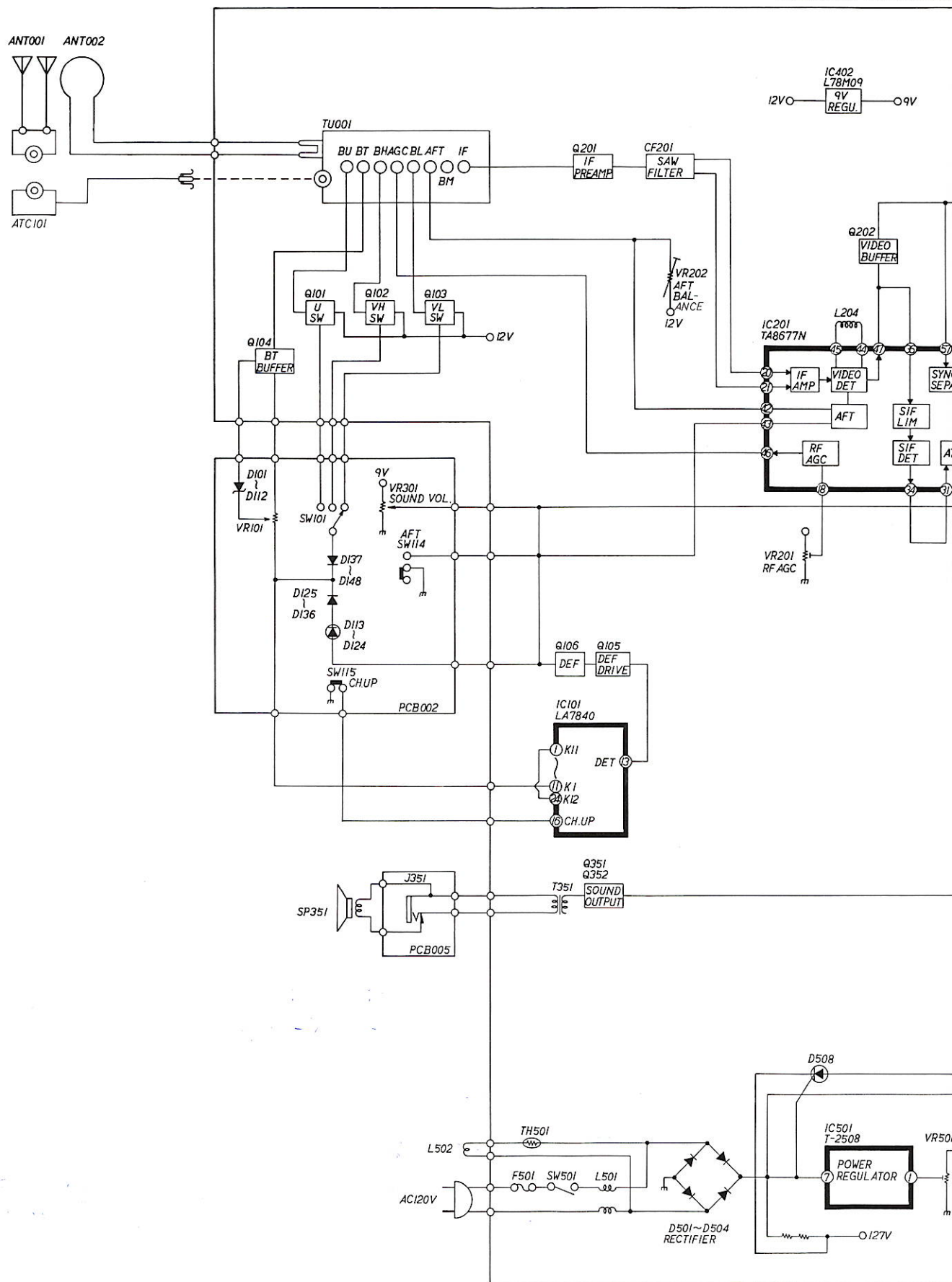
PHONE JACK P.C. BOARD



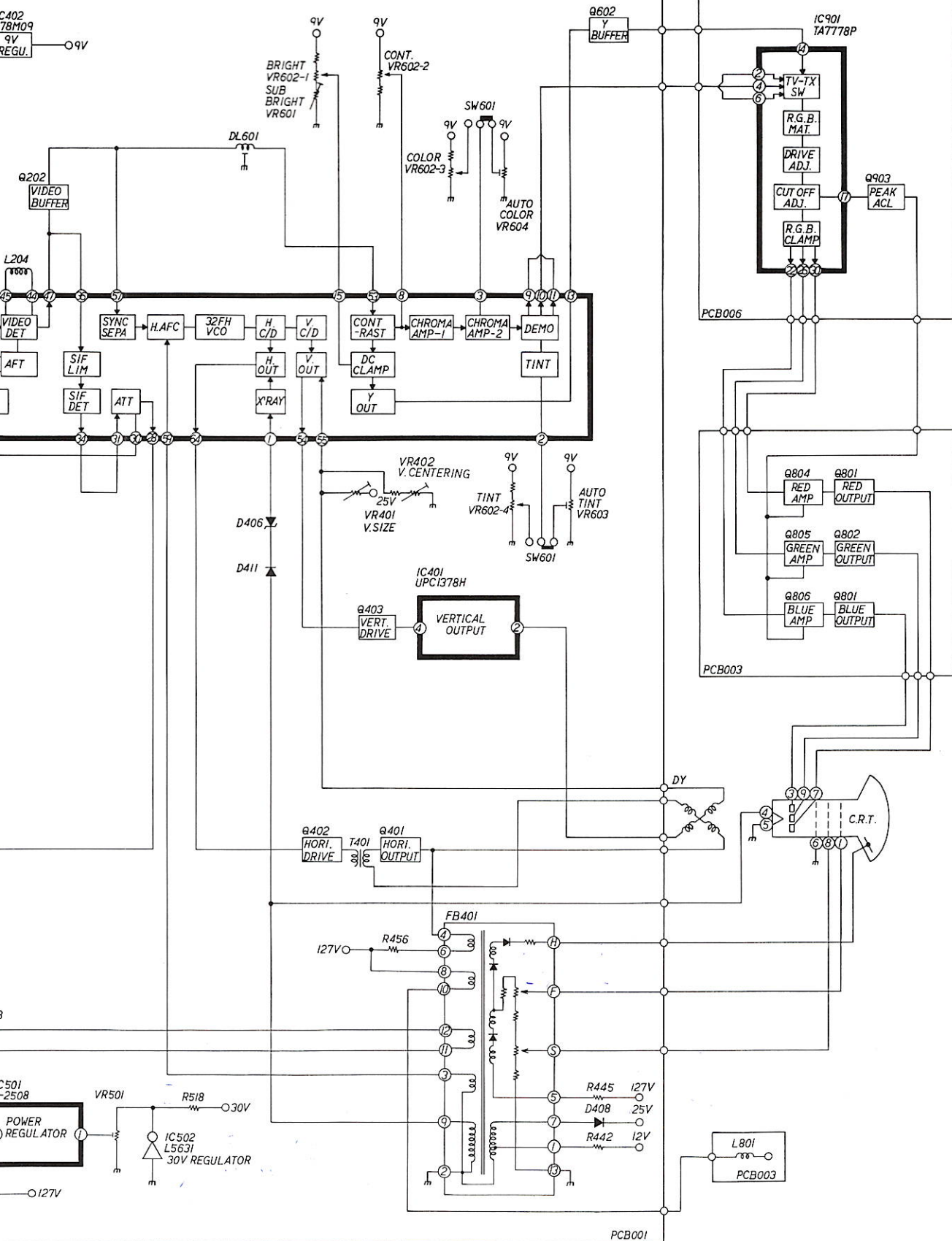
.C. BOARD



BLOCK DIAGRA

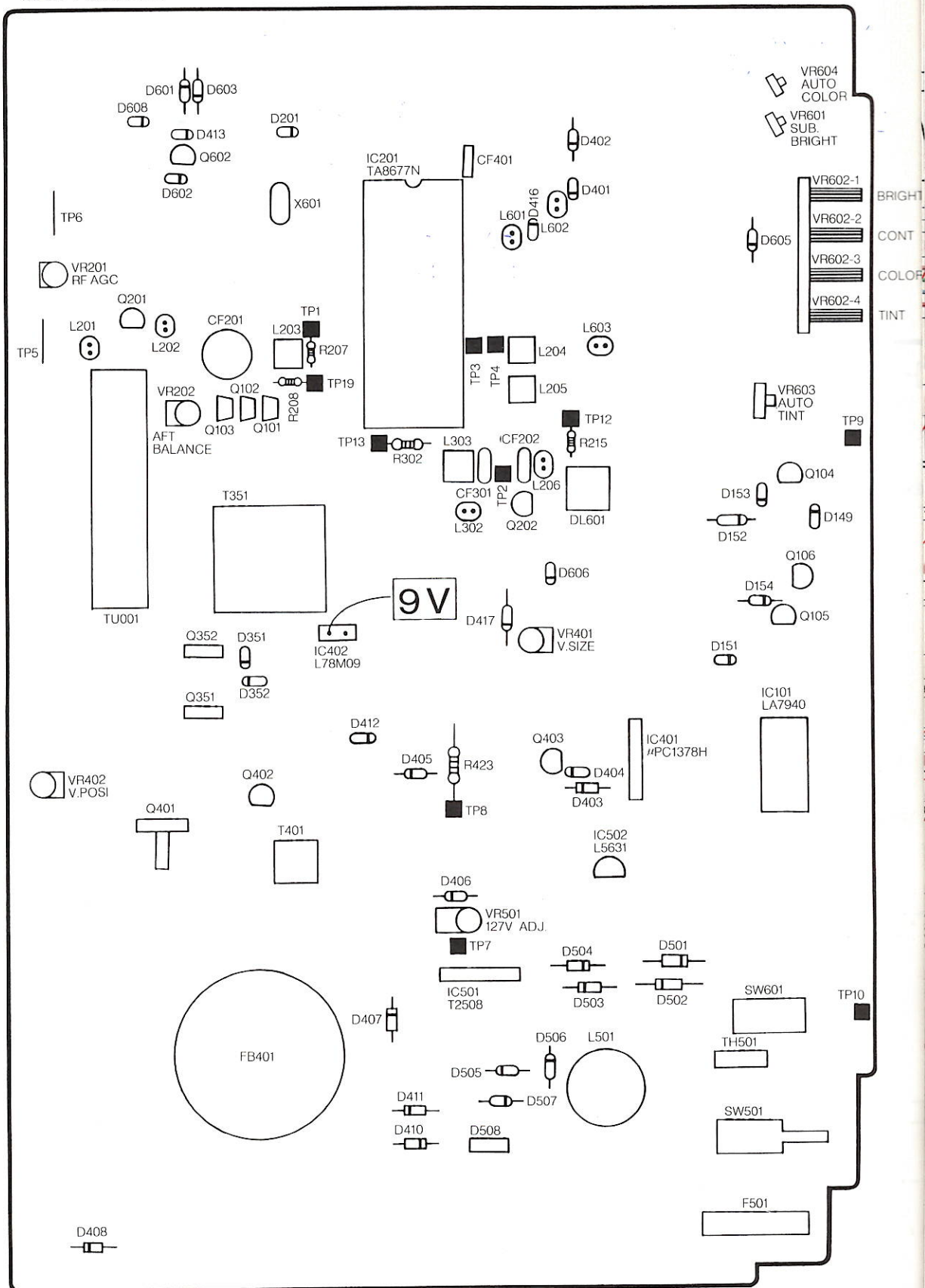


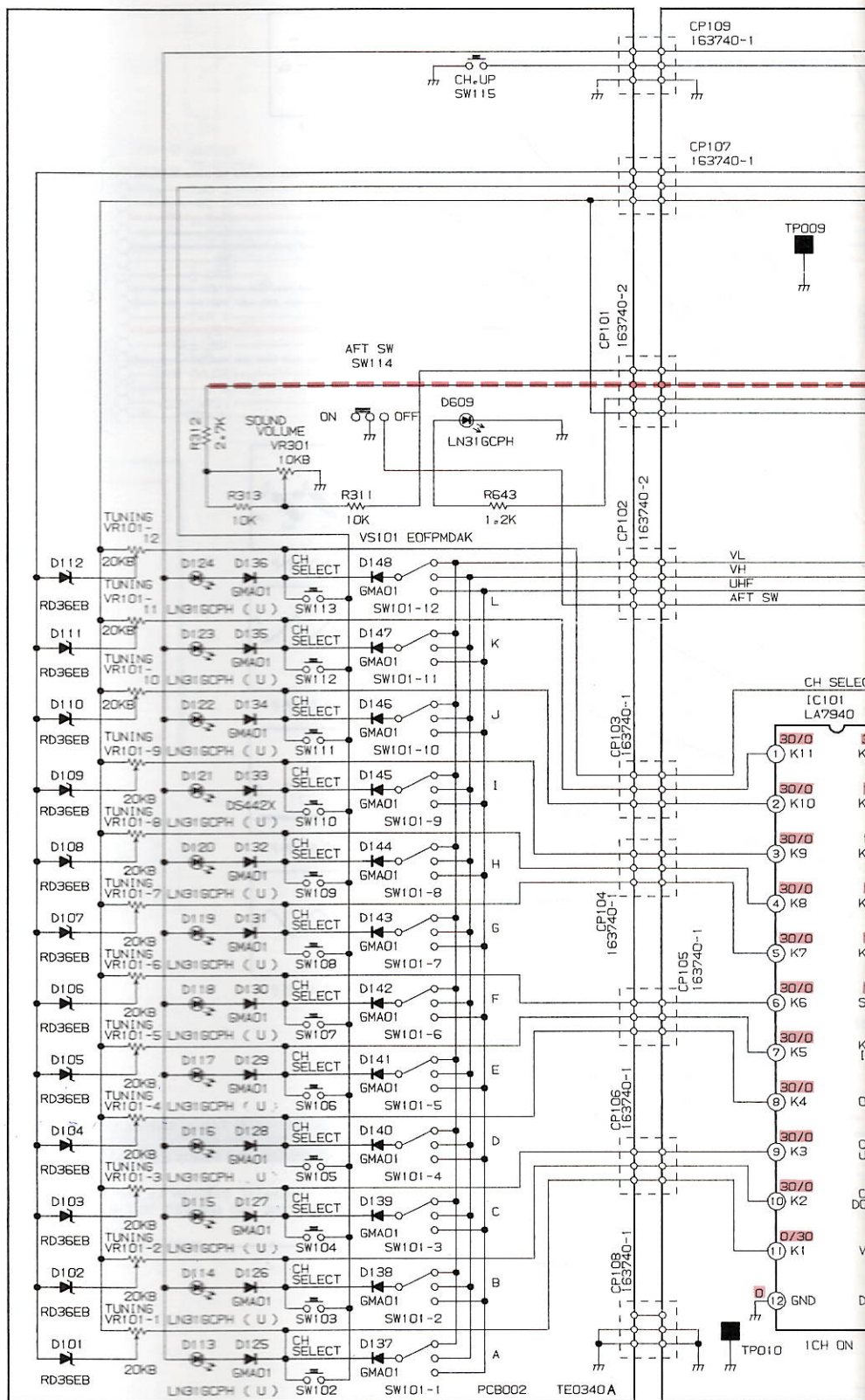
CK DIAGRAM



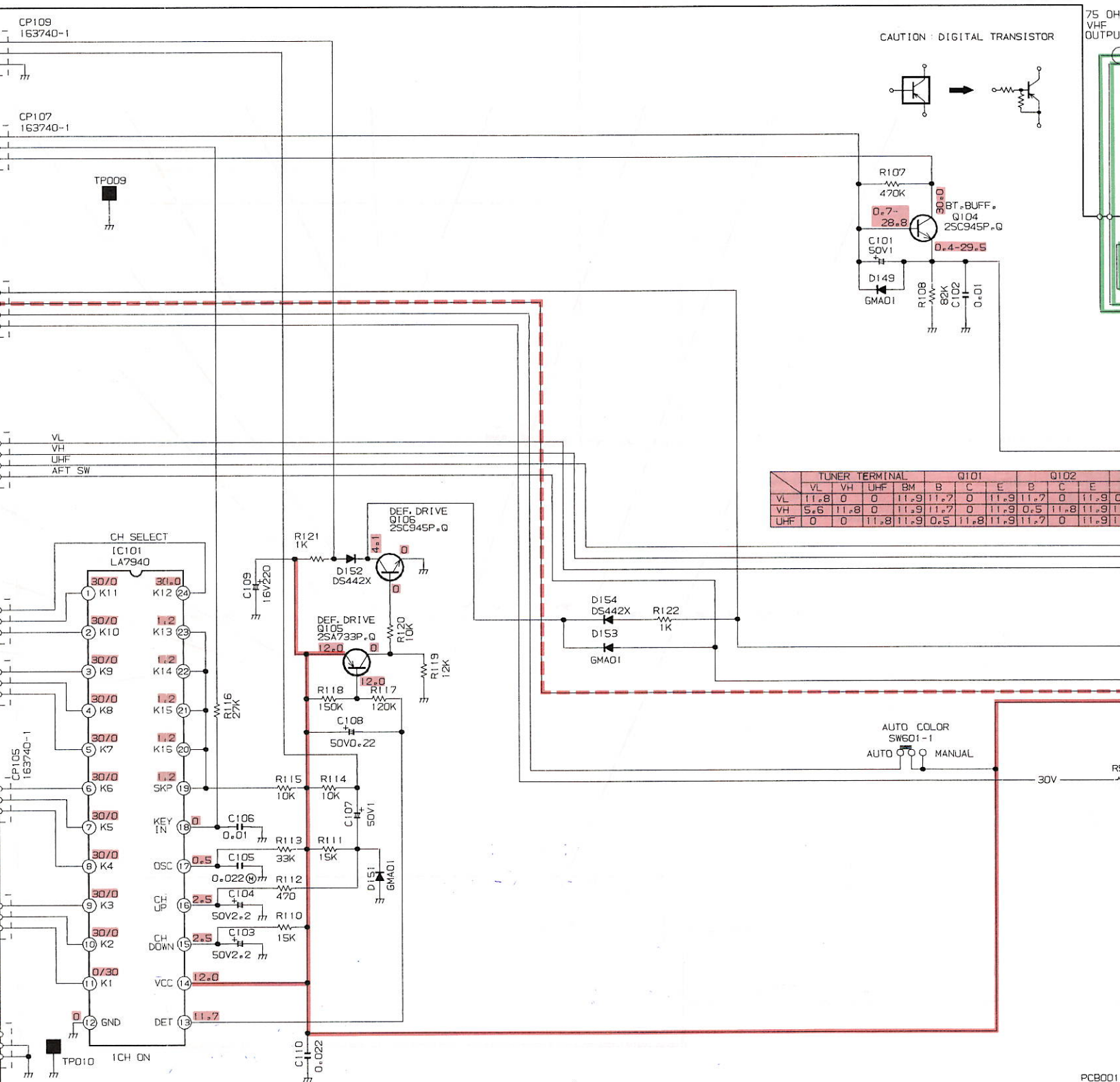
MAJOR COMPONENTS LOCATION GUIDE

MAIN P.C.BOARD



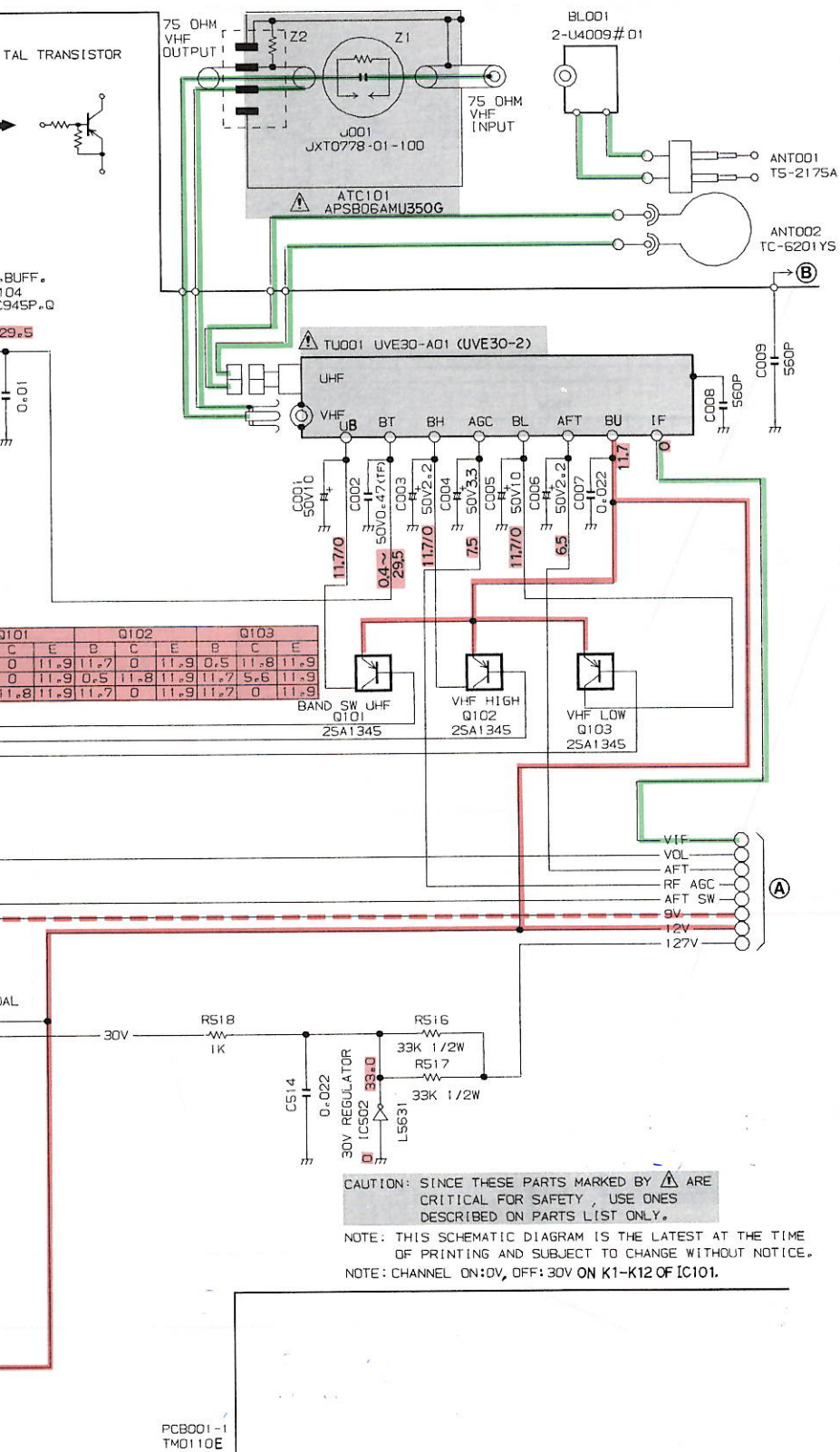


CHASSIS SCHEMATIC DIAGRAM



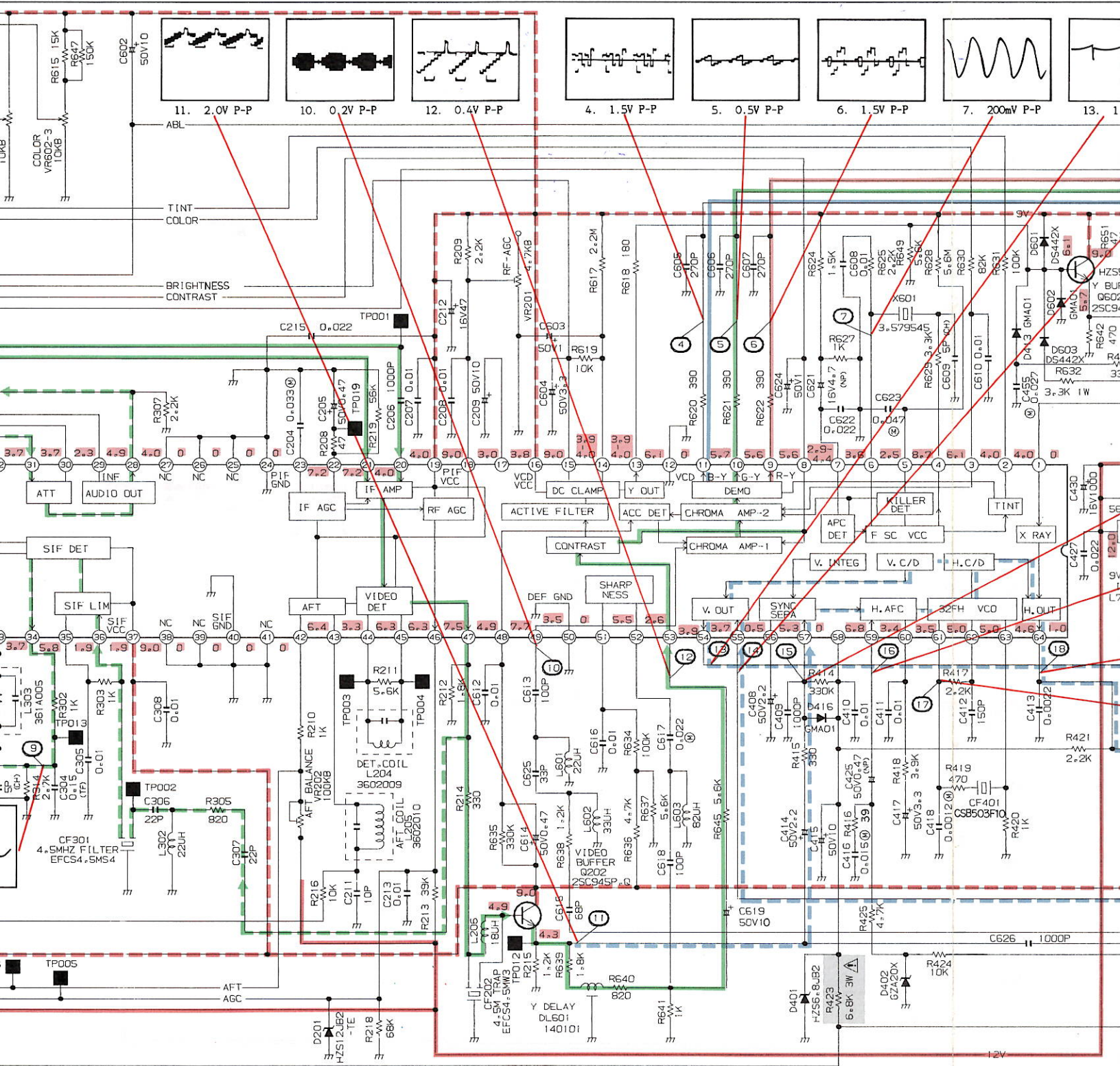
12V LINE
9V LINE
VIF SIGNAL

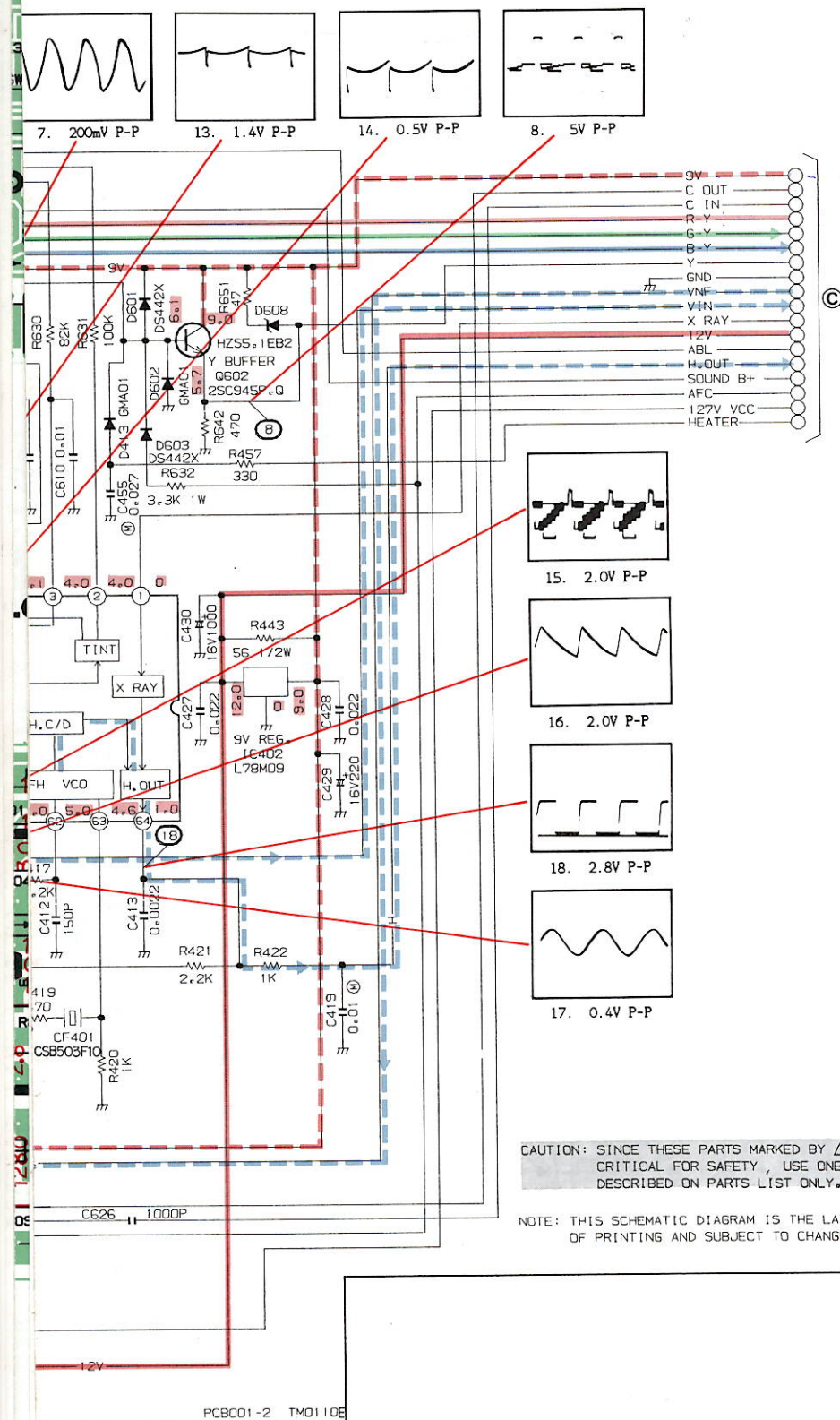
PCB001
TMO110





CHASSIS SCHEMATIC DIAGRAM





CAUTION: SINCE THESE PARTS MARKED BY Δ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED ON PARTS LIST ONLY.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

7. 200mV P-P

13. 1.4V P-P

14. 0.5V P-P

8. 5V P-P

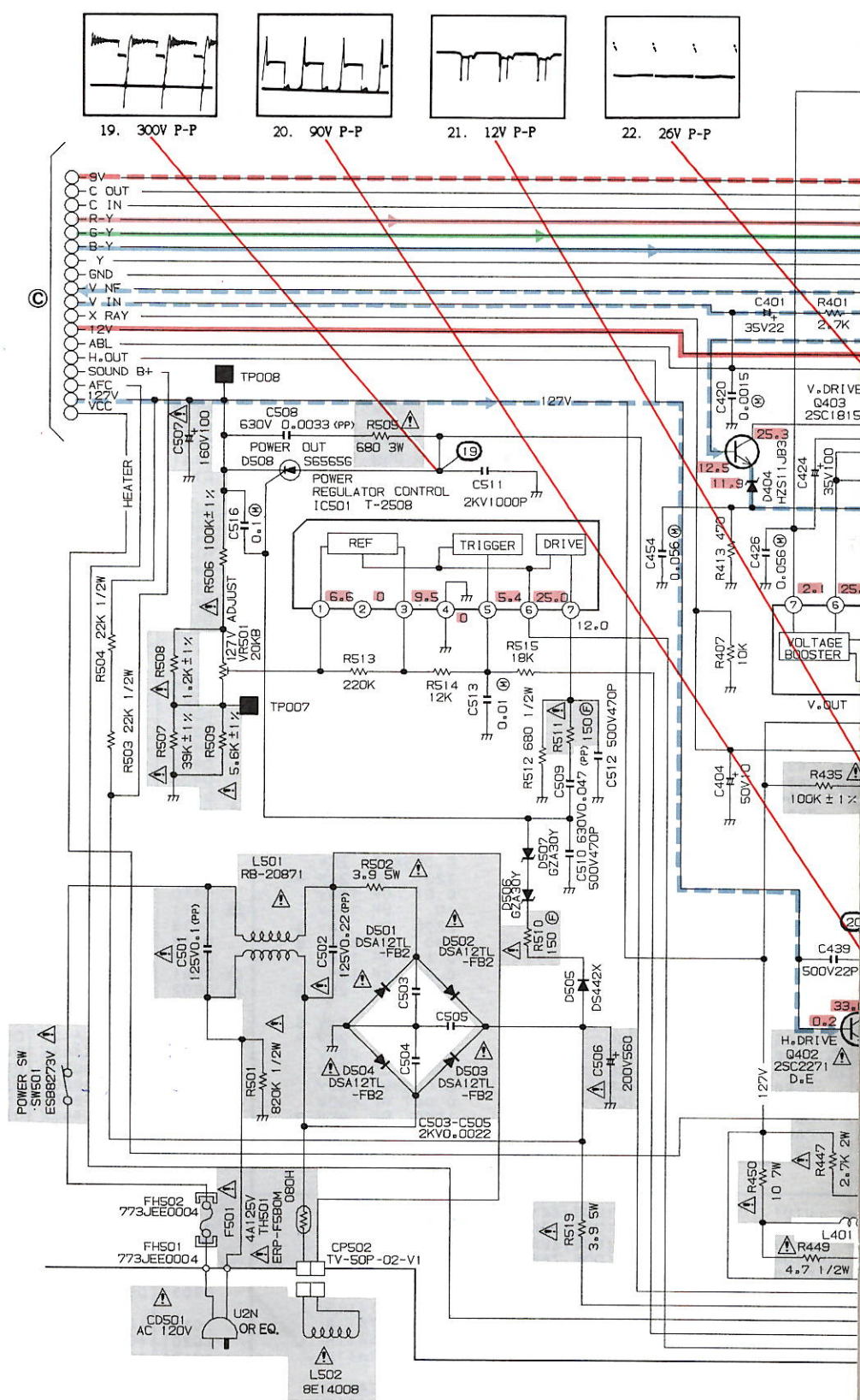
15. 2.0V P-P

16. 2.0V P-P

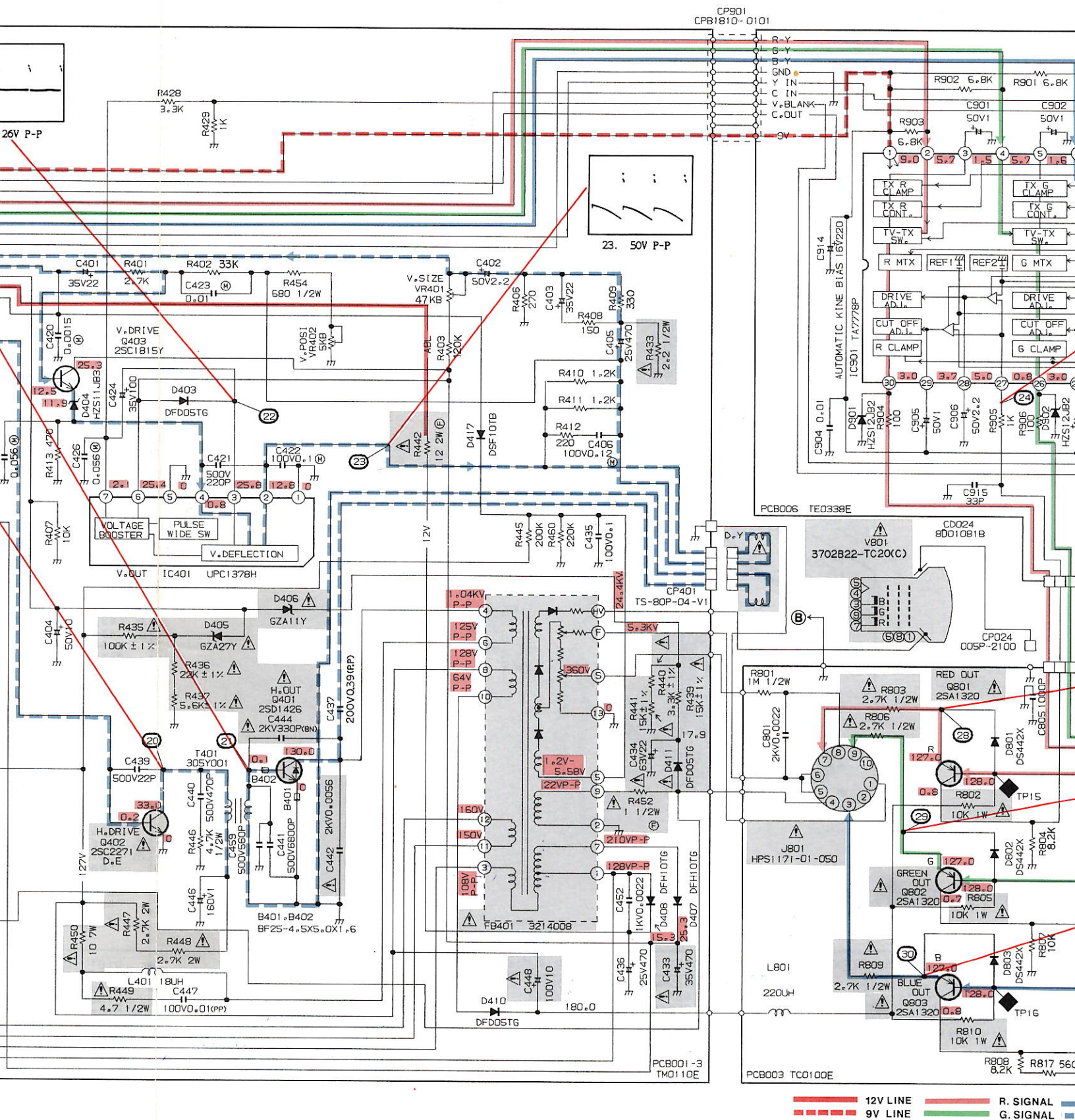
18. 2.8V P-P

17. 0.4V P-P

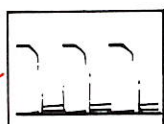
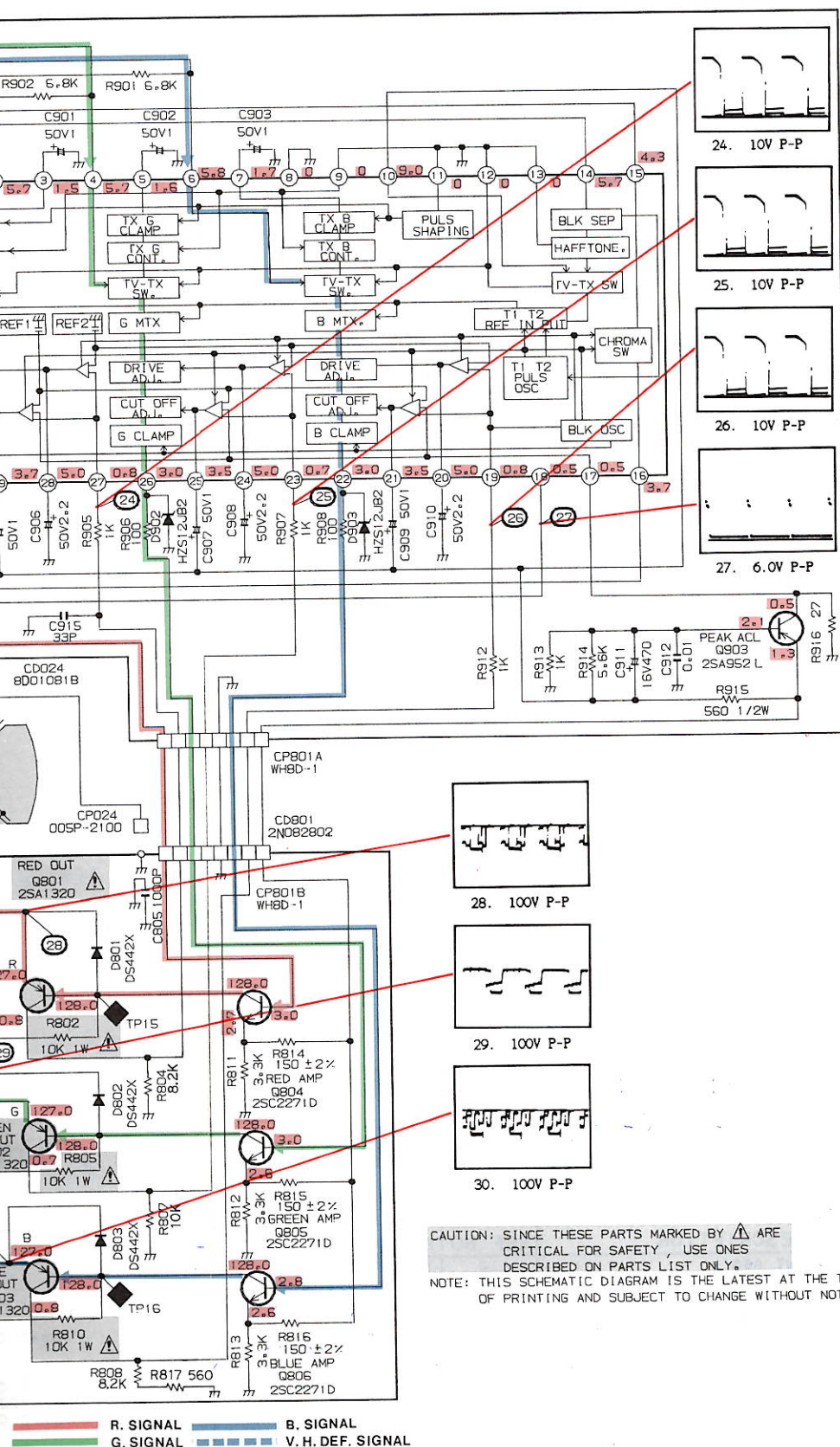
VIF/G. SIGNAL B. SIGNAL
SOUND SIGNAL V. H. DEF. SIGNAL



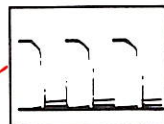
CHASSIS SCHEMATIC DIAGRAM



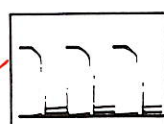
 12V LINE R. SIGNAL
 9V LINE G. SIGNAL



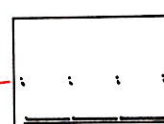
24. 10V P-P



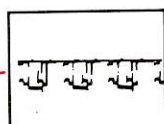
25. 10V P-P



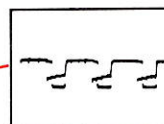
26. 10V P-P



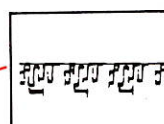
27. 6.0V P-P



28. 100V P-P



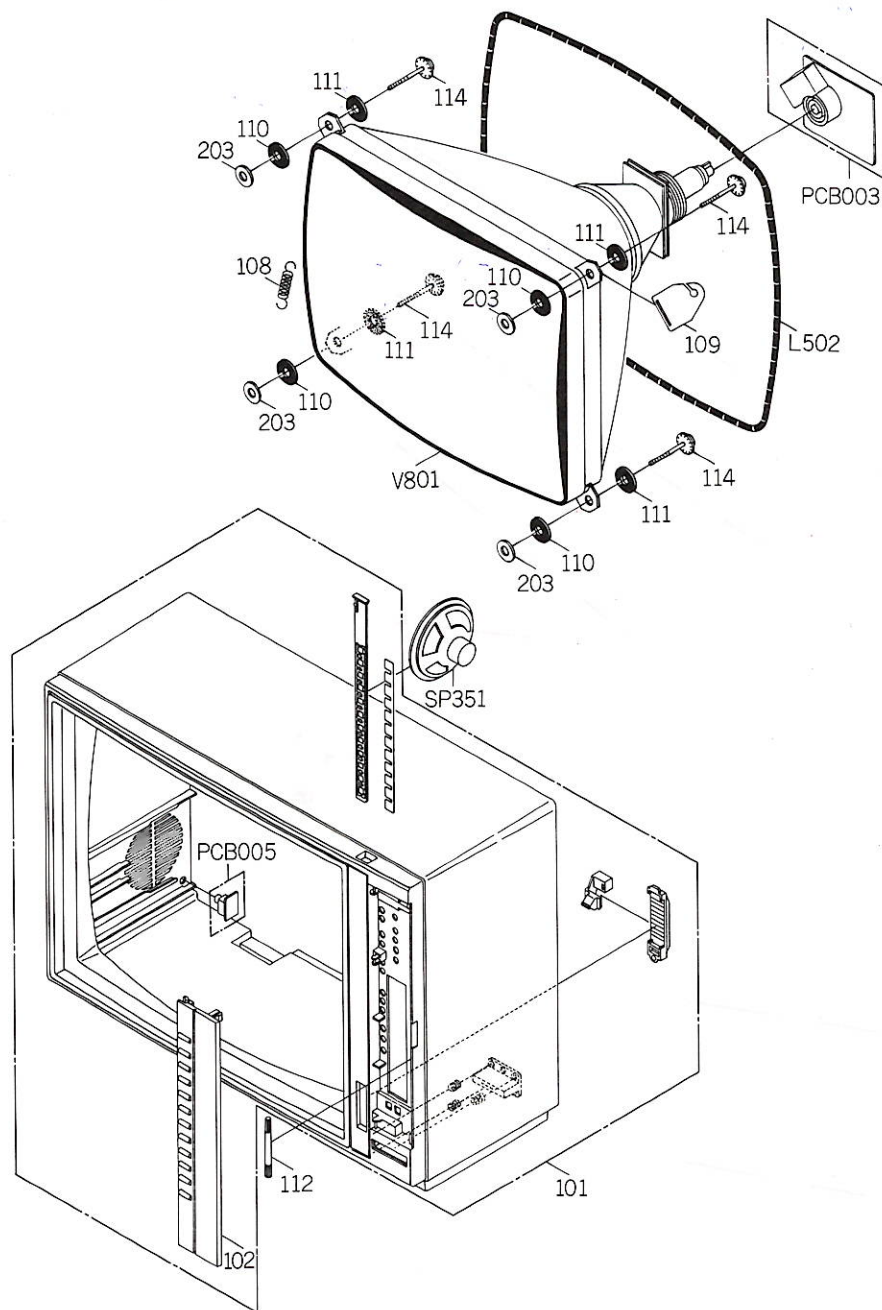
29. 100V P-P



30. 100V P-P

CAUTION: SINCE THESE PARTS MARKED BY Δ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED ON PARTS LIST ONLY.
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

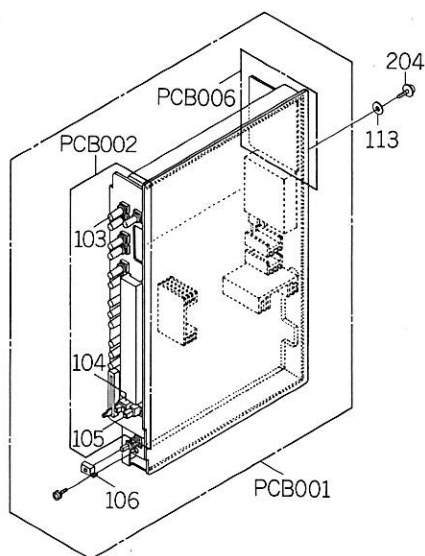
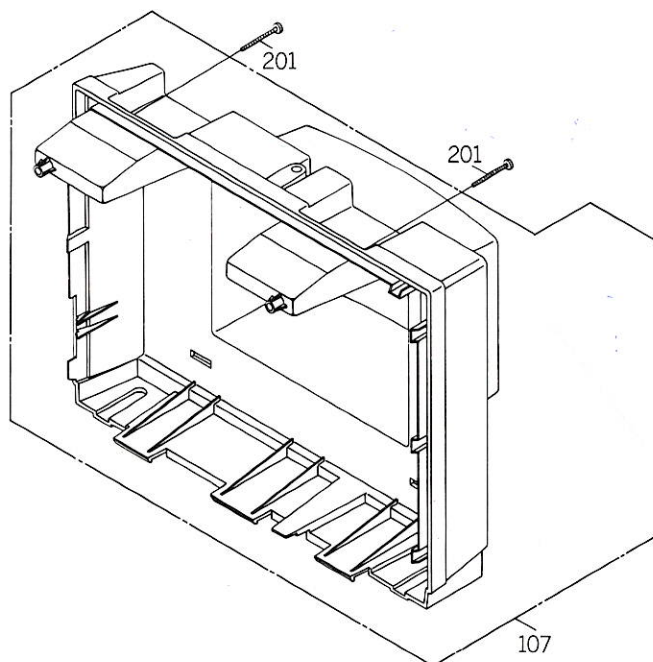
MECHANICAL EXPLODED VIEW



MECHANICAL REPLACEMENT PARTS

REF. NO	PARTS NO	DESCRIPTION	REF. NO	PARTS NO	DESCRIPTION
101	A35003723	CABINET, FRONT ASS'Y	110	800TR00007	SHEET, CRT SUPPORT
		SHEET, CAUTION	111	800TR00003	SHEET, CRT SUPPORT
		PLATE, ANODE COVER	112	739TPA0002	SHAFT, TUNING
102	A35003853	DOOR ASS'Y	113	8EA30A610A	FABER, WASHER
103	736TPA0003	BUTTON, CAP	114	8142150D04	TAP TITE(P) PW22 5*40
104	735TPA0001	BUTTON, AFT			
105	735TPA0010	BUTTON, CHANNEL	201	8116240D54	TAPPING(A) BIND 4*45
106	737TPA0004	POWER SWITCH CAP(4)	203	82A60B2164	WASHER 6.3*2
107	A35007743	CABINET, BACK ASS'Y	204	8117F30A04	TAPPING(B0) WH12 3*10
		SHEET, DATE			
108	741TUA0003	SPRING, EARTH			
109	751JNA0007	PLATE, EARTH WIRE			

EXPLODED VIEW



EXPLODED PARTS LIST

DESCRIPTION	REF. NO	PARTS NO	DESCRIPTION
SUPPORT	---	JEAGTFA02C	WARRANTY CARD
SUPPORT	---	JEAGTFA15H	SERVICE STATION LIST
NG	---	JEAGTFA17C	REGISTRATION CARD
HER	---	JEAGTFW01A	INSTRUCTION BOOK
) PW22	5*40 CH	JEAGTFW03A	SCHEMATIC DIAGRAM
		JTVG00016A	IMPORTANT SAFEGUARDS
		791THA0011	SHEET, LIGHTRON
		791THA0023	FILM, BAG
BJND	4*45 CH	792THA0071	PACKAGE, TOP
	6.3*22*T1.6	792THA0072	PACKAGE, BOTTOM
) WH12	3*10 CH	793TCD0438	GIFT BOX

REF. NO	PARTS NO
△ R352	R412T2393
△ R353	R412T2393
△ R356	R3B18A102
△ R357	R412T2221
△ R423	R3B20B682
△ R433	R412T22R2
△ R435	R421T4104
△ R436	R421T4223
△ R437	R421T4562
△ R439	R421T4153
△ R440	R421T6332
△ R441	R421T6153
△ R442	R6158A120
△ R447	R3B10A272
△ R448	R3B10A272
△ R449	R412T24R7
△ R450	R5A2CE100
△ R452	R63582010
△ R501	R412T2824
△ R502	R5A2CD3R9
△ R505	R3B28B681
△ R506	R421T4104
△ R507	R421T6393
△ R508	R425T6122
△ R509	R421T6562
△ R510	R61584151
△ R511	R61584151
△ R519	R5A2CD3R9
△ R628	R06224565
△ R632	R3B181332
△ R649	R0B106562
△ R802	R3B181103
△ R803	R412T2272
△ R805	R3B181103
△ R806	R412T2272
△ R809	R412T2272
△ R810	R3B181103
△ C214	COA0CK4201
△ C215	COA0F04H4
△ C352	E025FC2201
△ C355	E0A1FB1001
△ C406	P1A1F1124
△ C430	E0A1F2102
△ C433	E0A1F4471
△ C434	E027T6220
△ C436	E0A103471
△ C437	P4A1F2394
△ C441	COBB05U3
△ C442	P4A2FG562
△ C444	COA4BN7L2
△ C447	P3A1F1103
△ C448	E0B7T8100
△ C452	COABB06H3
△ C459	COA0B05S2
△ C501	P2612A104
△ C502	P2612A224
△ C503	COABB07H3
△ C504	COABB07H3
△ C505	COABB07H3
△ C506	E03MFC561
△ C507	E025FB101
△ C508	P3A1F5332
△ C509	P3A1F5473
△ C511	COABB0713
△ C801	COABB07H3
△ C915	COA0SL4L1
SP	
△ D101	D92T0360B
△ D102	D92T0360B
△ D103	D92T0360B
△ D104	D92T0360B
△ D105	D92T0360B
△ D106	D92T0360B
△ D107	D92T0360B
△ D108	D92T0360B
△ D109	D92T0360B
△ D110	D92T0360B
△ D111	D92T0360B
△ D112	D92T0360B

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO	PARTS NO	DESCRIPTION	REF. NO	PARTS NO	DESCRIPTION
RESISTORS			SEMICONDUCTORS (CONT)		
△ R352	R412T2393J	R. METAL 39K OHM 1/2W	D113	0021151050	LED LN31GCPH(U)-(C)
△ R353	R412T2393J	R. METAL 39K OHM 1/2W	D114	0021151050	LED LN31GCPH(U)-(C)
△ R356	R3B18A102J	R. METAL OXIDE 1K OHM 2 W	D115	0021151050	LED LN31GCPH(U)-(C)
△ R357	R412T2221J	R. METAL 220 OHM 1/2W	D116	0021151050	LED LN31GCPH(U)-(C)
△ R423	R3B20B682J	R. METAL OXIDE 6.8K OHM 3 W	D117	0021151050	LED LN31GCPH(U)-(C)
△ R433	R412T22R2J	R. METAL 2.2 OHM 1/2W	D118	0021151050	LED LN31GCPH(U)-(C)
△ R435	R421T4104F	R. METAL 100K OHM 1/4W	D119	0021151050	LED LN31GCPH(U)-(C)
△ R436	R421T4223F	R. METAL 22K OHM 1/4W	D120	0021151050	LED LN31GCPH(U)-(C)
△ R437	R421T4562F	R. METAL 5.6K OHM 1/4W	D121	0021151050	LED LN31GCPH(U)-(C)
△ R439	R421T4153F	R. METAL 15K OHM 1/4W	D122	0021151050	LED LN31GCPH(U)-(C)
△ R440	R421T6332F	R. METAL 3.3K OHM 1/6W	D123	0021151050	LED LN31GCPH(U)-(C)
△ R441	R421T6153F	R. METAL 15K OHM 1/6W	D124	0021151050	LED LN31GCPH(U)-(C)
△ R442	R6158A120J	R. FUSE 12 OHM 2 W	D125	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R447	R3B10A272J	R. METAL OXIDE 2.7K OHM 2 W	D126	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R448	R3B10A272J	R. METAL OXIDE 2.7K OHM 2 W	D127	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R449	R412T24R7J	R. METAL 4.7 OHM 1/2W	D128	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R450	R5A2CE100J	R. CEMENT 10 OHM 7 W	D129	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R452	R63582010J	R. FUSE 1 OHM 1/2W	D130	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R501	R412T2824J	R. METAL 820K OHM 1/2W	D131	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R502	R5A2CD3R9K	R. CEMENT 3.9 OHM 5 W	D132	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R505	R3B28B681J	R. METAL OXIDE 680 OHM 3 W	D133	D13TDS442X	DIODE, SILICON DS442X-BT
△ R506	R421T4104F	R. METAL 100K OHM 1/4W	D134	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R507	R421T6393F	R. METAL 39K OHM 1/6W	D135	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R508	R425T6122F	R. METAL 1.2K OHM 1/6W	D136	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R509	R421T6562F	R. METAL 5.6K OHM 1/6W	D137	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R510	R61584151J	R. FUSE 150 OHM 1/4W	D138	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R511	R61584151J	R. FUSE 150 OHM 1/4W	D139	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R519	R5A2CD3R9K	R. CEMENT 3.9 OHM 5 W	D140	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R628	R06224565J	RC 5.6M OHM 1/4W	D141	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R632	R3B181332J	R. METAL OXIDE 3.3K OHM 1 W	D142	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R649	R0B106562J	RC 5.6K OHM 1/6W	D143	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R802	R3B181103J	R. METAL OXIDE 10K OHM 1 W	D144	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R803	R412T2272J	R. METAL 2.7K OHM 1/2W	D145	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R805	R3B181103J	R. METAL OXIDE 10K OHM 1 W	D146	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R806	R412T2272J	R. METAL 2.7K OHM 1/2W	D147	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R809	R412T2272J	R. METAL 2.7K OHM 1/2W	D148	D13TGMA010	DIODE, SILICON GMA-01-BT
△ R810	R3B181103J	R. METAL OXIDE 10K OHM 1 W	D149	D13TGMA010	DIODE, SILICON GMA-01-BT
CAPACITORS			D151	D13TGMA010	DIODE, SILICON GMA-01-BT
C214	COA0CK420D	CC 2.0 PF CK	D152	D13TDS442X	DIODE, SILICON DS442X-BT
C215	COA0F04H4Z	CC 0.022 UF F	D153	D13TGMA010	DIODE, SILICON GMA-01-BT
C352	E025FC220M	CE 22 UF 200V	D154	D13TDS442X	DIODE, SILICON DS442X-BT
C355	E0A1FB100M	CE 10 UF 160V	D201	D94TA120J2	DIODE, ZENER HZS12JB2-TE
C406	P1A1F1124K	CP 0.12 UF 100V	D351	D13TGMA010	DIODE, SILICON GMA-01-BT
C430	E0A1F2102M	CE 1000 UF 16V	D352	D13TGMA010	DIODE, SILICON GMA-01-BT
C433	E0A1F4471M	CE 470 UF 35V	D401	D94TA6R8J2	DIODE, ZENER HZS6R8JB2-TE
C434	E027T6220M	CE 22 UF 63V	D402	D93T02000X	DIODE, ZENER GZA20 X BT
C436	E0A103471M	CE 470 UF 25V	D403	D23TFD05TG	DIODE, RECTIFIER DFD05TG-BT
C437	P4A1F2394J	CMPP 0.39 UF 200V	D404	D94TA110J3	DIODE, ZENER HZS11JB3-TE
△ C441	C0DBB05U3K	CC 6800 PF 500V B	△ D405	D93T02700Y	DIODE, ZENER GZA27 Y BT
△ C442	P4A2F0562J	CMPP 0.0056UF 2KV	△ D406	D93T01100Y	DIODE, ZENER GZA11 Y BT
△ C444	C0D4BN7L2K	CC 330 PF 2KV BN	D407	D23FFH10TG	DIODE, RECTIFIER DFH10TG-KB4
△ C447	P3A1F1103J	CPP 0.01 UF 100V	D408	D23FFH10TG	DIODE, RECTIFIER DFH10TG-KB4
△ C448	E0B7T8100M	CE 10 UF 100V	D410	D23TFD05TG	DIODE, RECTIFIER DFD05TG-BT
△ C452	COAB806H3K	CC 2200 PF 1KV B	△ D411	D23TFD05TG	DIODE, RECTIFIER DFD05TG-BT
△ C459	COA0B05S2K	CC 560 PF 500V B	D413	D13TGMA010	DIODE, SILICON GMA-01-BT
△ C501	P2612A104M	CMP 0.1 UF 125V	D416	D130GMA010	DIODE, SILICON GMA-01
△ C502	P2612A224M	CMP 0.22 UF 125V	D417	D23GDSF10T	DIODE, RECTIFIER DSF10TB-KB1
△ C503	COAB807H3K	CC 2200 PF 2KV B	△ D501	D23HDSA12T	DIODE, RECTIFIER DSA12TL-FB2
△ C504	COAB807H3K	CC 2200 PF 2KV B	△ D502	D23HDSA12T	DIODE, RECTIFIER DSA12TL-FB2
△ C505	COAB807H3K	CC 2200 PF 2KV B	△ D503	D23HDSA12T	DIODE, RECTIFIER DSA12TL-FB2
△ C506	E03MFC561M	CE 560 UF 200V	△ D504	D23HDSA12T	DIODE, RECTIFIER DSA12TL-FB2
△ C507	E025FB101M	CE 100 UF 160V	D505	D13TDS442X	DIODE, SILICON DS442X-BT
△ C508	P3A1F5332J	CPP 0.0033UF 630V	D506	D93T03000Y	DIODE, ZENER GZA30 Y BT
△ C509	P3A1F5473J	CPP 0.047 UF 630V	D507	D93T03000Y	DIODE, ZENER GZA30 Y BT
△ C511	COAB80713K	CC 1000 PF 2KV B	D508	TF50S6565G	THYLISOR S6565G
△ C801	COAB807H3K	CC 2200 PF 2KV B	D601	D13TDS442X	DIODE, SILICON DS442X-BT
△ C915	COA0SL41K	CC 33 PF SL	D602	D13TGMA010	DIODE, SILICON GMA-01-BT
SEMICONDUCTORS			D603	D13TDS442X	DIODE, SILICON DS442X-BT
D101	D92T0360B0	DIODE, ZENER RD36EB TA11R	D608	D94TA5R1B2	DIODE, ZENER HZS5R1EB2-T
D102	D92T0360B0	DIODE, ZENER RD36EB TA11R	D609	0021151050	LED LN31GCPH(U)-(C)
D103	D92T0360B0	DIODE, ZENER RD36EB TA11R	D801	D13TDS442X	DIODE, SILICON DS442X-BT
D104	D92T0360B0	DIODE, ZENER RD36EB TA11R	D802	D13TDS442X	DIODE, SILICON DS442X-BT
D105	D92T0360B0	DIODE, ZENER RD36EB TA11R	D803	D13TDS442X	DIODE, SILICON DS442X-BT
D106	D92T0360B0	DIODE, ZENER RD36EB TA11R	D901	D94TA120J2	DIODE, ZENER HZS12JB2-TE
D107	D92T0360B0	DIODE, ZENER RD36EB TA11R	D902	D94TA120J2	DIODE, ZENER HZS12JB2-TE
D108	D92T0360B0	DIODE, ZENER RD36EB TA11R	D903	D94TA120J2	DIODE, ZENER HZS12JB2-TE
D109	D92T0360B0	DIODE, ZENER RD36EB TA11R	IC101	I03D079400	LA7940 CH SELECT
D110	D92T0360B0	DIODE, ZENER RD36EB TA11R	IC201	I05DE86770	TA8677N VIF/SIF CHROMA DEFLECTION
D111	D92T0360B0	DIODE, ZENER RD36EB TA11R	IC401	I02SD13780	UPC1378H V.OUT
D112	D92T0360B0	DIODE, ZENER RD36EB TA11R	IC402	I03B98M090	L78M09-SA 9V REGULATOR
			IC501	I05S925080	T-2508 POWER REGULATOR CONTROL
			IC502	I03I956310	L5631-AA 30V REGULATOR
			IC901	I05DE77780	TA7778P AUTOMATIC KINE BIAS

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO	PARTS NO	DESCRIPTION	REF. NO	PARTS NO	DESCRIPTION
SEMICONDUCTORS (CONT)			VARIABLE RESISTORS		
Q101	TP3TD06001	2SA1345 BAND SW UHF	VR201	V1262Q3B01	VR, SEMI FIXED 4.7KB RF-AGC
Q102	TP3TD06001	2SA1345 VHF HIGH	VR202	V126315B01	VR, SEMI FIXED 100KB AFT BALANCE
Q103	TP3TD06001	2SA1345 VHF LOW	VR301	V213014B02	VR, SLIDE 10KB SOUND VOL.
Q104	TCLT009450	2SC945A(C)T ALL BT BUFFER	VR401	V1G5C54B04	VR, SEMI FIXED 47KB V.SIZE
Q105	TALT007330	2SA733(C)-T ALL DEF. DRIVE	VR402	V1G5C53B04	VR, SEMI FIXED 5KB V.POSI
Q106	TCLT009450	2SC945A(C)T ALL DEF. DRIVE	VR501	V1G5D24B07	VR, SEMI FIXED 20KB 12TV ADJ.
Q201	TC3T030000	2SC3000-AA IF PREAMP	VR601	V195C53B10	VR, SEMI FIXED 5KB SUB. BRIGHT
Q202	TCLT009450	2SC945A(C)T ALL VIDEO BUFFER	VR602	V029400013	VR, ROTARY 500B BRIGHT
Q351	TC3002344E	2SC2344E SOUND OUTPUT			10KB*3 CONT., COLOR, TINT
Q352	TC3002344E	2SC2344E SOUND OUTPUT	VR603	V1F5214B04	VR, SEMI FIXED 10KB AUTO TINT
			VR604	V1F5214B04	VR, SEMI FIXED 10KB AUTO COLOR
Q401	TD5F014260	2SD1426 H. OUT	P.C. BOARDS ASS'Y		
Q402	TC3R022710	2SC2271 H. DRIVE	PCB001	A35007010S	PCB ASS'Y TM0110E-S MAIN
Q403	TC5T018154	2SC1815Y V. DRIVE	PCB002	A35007120	PCB ASS'Y TE0340A POTENTIOMETER
Q602	TCLT009450	2SC945A(C)T ALL Y BUFFER	PCB003	A35007110	PCB ASS'Y TC0100E CRT
Q801	TA5T013200	2SA1320 RED OUT	PCB005	A35007270	PCB ASS'Y TE0339A EARPHONE JACK
Q802	TA5T013200	2SA1320 GREEN OUT	PCB006	A35007100	PCB ASS'Y TE0338E AKB
Q803	TA5T013200	2SA1320 BLUE OUT	MISCELLANEOUS		
Q804	TC3002271D	2SC2271D RED AMP	ANT001	1251110013	ANTENNA, ROD T5-2175A
Q805	TC3002271D	2SC2271D GREEN AMP	ANT002	125W500001	ANTENNA, LOOP TC-6201YS
Q806	TC3002271D	2SC2271D BLUE AMP	ATC101	063A300008	ANT SHIELD BOX APSB06AMU350G-WD
Q903	TA2T00952L	2SA952LT PEAK ACL	B401	0246451652	CORD, BEADS BF25-4.5*5*1.6
COILS & TRANSFORMERS			B402	0246451652	CORD, BEADS BF25-4.5*5*1.6
L201	021Z73R39M	COIL EL0606RA-R39M 0.39 UH Q=50	BL001	063B200015	PLUG-FJ 2-U4009#01
L202	021Z731R0K	COIL EL0606RA-1R0K 1.0 UH Q=50	CD024	068D010818	CORD CONNECTOR 8D010818
L203	021N05R91K	COIL R22-9530A 0.91 UH	CD351	068D32038A	CORD CONNECTOR 8D32038A
L204	033602009C	COIL, VIDEO IFT 3602009	CD501	120U410309	CORD AC BUSH U2N 7FEET
L205	033602010C	COIL, VIDEO IFT 3602010	CD801	122N082802	CORD JUMPER 2N082802
L206	021Z73180K	COIL EL0606RA-180K 18 UH Q=50	CF201	1028045R71	FILTER, SAW TSF1203C
L302	021Z73220K	COIL EL0606RA-220K 22 UH Q=50	CF202	1011104R51	FILTER, CERAMIC TRAP EFC54R5MW3
L303	03361A005C	COIL, SOUND IFT 361A005	CF301	101104R501	FILTER, CERAMIC EFC54R5MS4
L401	021927180K	COIL 021927180K 18 UH	CF401	1002R01501	CERAMIC, OSCILLATOR CSB503F10
L501	0290000001	COIL, LINE FILTER RB-20871	CP024	069D010010	CONNECTOR PCB SIDE 005P-2100
L502	028E140008	COIL DEGAUSS 8E140008	CP101	0694F40010	F-CHIP 163740-2
L601	021Z73220K	COIL EL0606RA-220K 22 UH Q=50	CP102	0694F40010	F-CHIP 163740-2
L602	021JA6330K	COIL LAL02T330K-T 33 UH TA	CP103	0694F30010	F-CHIP 163740-1
L603	02100A820M	COIL RX-7P-820M 82 UH	CP104	0694F30010	F-CHIP 163740-1
L801	021Z63221K	COIL EL0606SKI-221K 220 UH Q=45	CP105	0694F30010	F-CHIP 163740-1
T351	045128003C	TRANSFORMER, SOUND OUTPUT RB-20875	CP106	0694F30010	F-CHIP 163740-1
T401	03305Y001C	TRANS. HORIZONTAL DRIVE 305Y001	CP107	0694F30010	F-CHIP 163740-1
JACK & CONNECTORS			CP108	0694F30010	F-CHIP 163740-1
J001	0632000020	JACK PLATE JXT0778-01-100	CP109	0694F30010	F-CHIP 163740-1
J351	0602121007	JACK RCA 3.5 HJS0792-01-030	CP351	069D320018	CONNECTOR PCB SIDE TS-80P-02-V1
J801	0662120007	SOCKET, CRT HPS1171-01-050	CP401	069D340018	CONNECTOR PCB SIDE TS-80P-04-V1
SWITCHES			CP502	069D420029	CONNECTOR PCB SIDE TV-50P-02-A1
SW102	0504211004	SWITCH, TACT SKHHAEO33A CH SEL. A	CP901	069Q1A0179	CONNECTOR PCB SIDE CPB1810-0101
SW103	0504211004	SWITCH, TACT SKHHAEO33A CH SEL. B	CP801A	0675108019	WIRE HOLDER WH8D-1
SW104	0504211004	SWITCH, TACT SKHHAEO33A CH SEL. C	CP801B	0675108019	WIRE HOLDER WH8D-1
SW105	0504211004	SWITCH, TACT SKHHAEO33A CH SEL. D	DL601	103G140101	DELAY LINE 140101
SW106	0504211004	SWITCH, TACT SKHHAEO33A CH SEL. E	EAR001	0741130003	EARPHONE HES0010-01-0230
SW107	0504211004	SWITCH, TACT SKHHAEO33A CH SEL. F	F501	081EC04003	FUSE TSC-040 4A 125V
SW108	0504211004	SWITCH, TACT SKHHAEO33A CH SEL. G	FB401	0432140081	TRANSFORMER, FLYBACK 3214008
SW109	0504211004	SWITCH, TACT SKHHAEO33A CH SEL. H	FH501	067H000003	HOLDER, FUSE 773JEE0004
SW110	0504211004	SWITCH, TACT SKHHAEO33A CH SEL. I	FH502	067H000003	HOLDER, FUSE 773JEE0004
SW111	0504211004	SWITCH, TACT SKHHAEO33A CH SEL. J	SP351	070L132002	SPEAKER 77P01A2
SW112	0504211004	SWITCH, TACT SKHHAEO33A CH SEL. K	TH501	D8100M8R00	DEGAUSS ELEMENT ERP-F5B0M080H
SW113	0504211004	SWITCH, TACT SKHHAEO33A CH SEL. L	TU001	0145100001	TUNER, UHF-VHF UVE30-A01
SW114	0501324001	SWITCH, PUSH HPW1260-01-030 AFT	V801	098F140414	TUBE, CATHODE RAY 3702B22-TC20(C)
SW115	0504211004	SWITCH, TACT SKHHAEO33A CH UP	VS101	V421100004	POTENTIOMETER UBH040007C (E0FPMDAK)
SW501	0530105007	SWITCH, PUSH ESB-8273V POWER	X601	100C357901	CRYSTAL KSSH49U 3.579545MHZ
SW601	0500101012	SWITCH, PUSH ESB-62555 AUTO COLOR			

RESISTOR
RC.....CARBON RESISTOR

CAPACITORS
CC.....CERAMIC CAPACITOR
CE.....ALUMI ELECTROLYTIC CAPACITOR
CP.....POLYESTER CAPACITOR
CPP.....POLYPROPYLENE CAPACITOR
CPL.....PLASTIC CAPACITOR
CMP.....METAL POLYESTER CAPACITOR
CMPL.....METAL PLASTIC CAPACITOR
CMPP.....METAL POLYPROPYLENE CAPACITOR
CST.....STYROL CAPACITOR

DIFFERENCES

For interchangeability. (CRT)

REF.No	Suffix BLANK ⑤		Suffix A ⑥	
	Part No.	Description	Part No.	Description
V801	098F140414	CRT 3702B22-TC20(C)	098G140411	CRT 370KSB22-TC13
R402	ROB1T6333J	RC 33K OHM 1/6W	ROB1T6273J	RC 27K OHM 1/6W
R409	ROB1T4331J	RC 330 OHM 1/4W	ROB1T4391J	RC 390 OHM 1/4W
R416	ROB1T6330J	RC 33 OHM 1/6W	ROB1T6270J	RC 27 OHM 1/6W
R453		—————	ROB1T4272J	RC 2.7K OHM 1/4W
R804	R425T4822J	RC 8.2K OHM 1/4W	R425T4133J	RC 13K OHM 1/4W
R808	R425T4822J	RC 8.2K OHM 1/4W	R425T4133J	RC 13K OHM 1/4W
R817	ROB1T6561J	RC 560 OHM 1/6W		5mm Jumper
C437	P4A1F2394J	CMPP 0.39UF 200V	P4A1F2564J	CMPP 0.56UF 200V
C443		—————	COD4BN7G2K	CC 180PF 2KV
C806		—————	CF4TB04L2K	CC 330PF
C807		—————	CF4TB04E2K	CC 150PF
C808		—————	CF4TB04L2K	CC 330PF